
वाल्ट (कोष कक्ष) के दरवाजे
भाग 2 चोरी से प्रतिरोध संबंधी परीक्षण
(तीसरा पुनरीक्षण)

Vault (Strong Room) Doors

Part 2 Test for Burglary Resistance

(Third Revision)

ICS 13.310

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FOREWORD

This Indian Standard (Part 2) (Third Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Security Equipments Sectional Committee had been approved by the Mechanical Engineering Divisional Council.

This standard was first published in 1991 and was revised in 2014.

The important change in this revision is:

- a) The total time within which a test attack is expected to be completed, is modified to 4 times of net working time.

This Indian Standard is published in 3 parts. The other parts in this series are:

Part 1 Specification

Part 3 Tests for fire resistance

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

VAULT (STRONG ROOM) DOORS

PART 2 TEST FOR BURGLARY RESISTANCE

(Third Revision)

1 SCOPE

1.1 This standard (Part 2) lays down the method of test for accessing burglary resistance of the vault (strong room) doors.

1.2 This standard does not lay down the method for accessing the resistance of vault (strong room) door against attacks with the burning bar (thermic lance) or heavy explosives.

2 TERMINOLOGY

2.1 620 cm² Opening — A rectangular shaped opening with the smallest dimension 152 mm or a circular opening with 281 mm diameter, or an isosceles right angled triangle shaped opening with a hypotenuse of 498 mm.

2.2 Common Hand Tools — These include chisels, punches, wrenches, screw drivers, pliers, hammers and sledge hammers.

2.2.1 Chisels — Weight 0.25 to 1.5 kg and length 300 to 450 mm ($L \pm 5$ mm).

2.2.2 Punches — Weight 50 to 100 g and length 100 to 150 mm.

2.2.3 Wrenches — Pipe wrenches fixed or adjustable, 15 to 25 mm dia and 225 to 450 mm length.

2.2.4 Spanners — Standard available double ended or ring spanners, fixed or adjustable, 225 to 380 mm length.

2.2.5 Screw Drivers — Dia 8 to 13 mm and total length 250 to 300 mm.

2.2.6 Pliers — Standard or combination, length 150 to 200 mm and weight 170 to 300 g.

2.2.7 Hammers and Sledges — Head weight 1.7 to 3.5 kg and length 200 to 600 mm.

2.2.8 Pry Bars and Ripping Tools — Rod diameter 18 to 20 mm /or Hex 20 to 25 A/F and length 1 000 to 1 200 mm.

2.3 Impact Tools — Portable electric impact hammer 25 mm size rated 850 to 1 150 W, maximum impact energy 10 J and rated speed 1 300 to 2 900 blows per minute (bpm) and with high speed steel (HSS) chisel length 300 to 450 mm, electric hand drills, hammer drills high speed steel (HSS) and carbide tipped 650 to 820 W, drill diameter 6 to 25 mm.

2.4 Pressure Applying Devices — Includes portable drill presses, portable drilling jigs or any other types of drill holding mechanism.

2.5 Portable Electric Tools — Electric hand drills accommodating drill bits not larger than 20 mm and coring drills. It includes carbide tipped drills and also portable abrasive cutting wheels. Rated 550 to 800 W, drill diameter 6 to 13 mm.

2.6 Power Saws — These include circular saws 600 to 1 100 W, wheel diameter 75 to 200 mm, hole saws 100 to 305 mm in diameter and reciprocating saws rated 600 to 1 150 W, blade length 150 to 200 mm.

2.7 Hydraulic Tools — Portable electrically or manually operated jacks, wedges and similar pressure applying devices not exceeding 400 to 445 kN of force.

2.8 Gas Cutting Torch — Oxygen-acetylene fuelled cutting torch 180° (straight), length of 900 to 1 300 mm and nozzle diameter of 3.15 mm. The quantity of gas consumed (combined total oxygen and fuel gas) in any one test shall be limited as follows:

- a) For Class C door 28 m³,
- b) For Class B door 56 m³,
- c) For Class A door 112 m³,
- d) For Class AA door 224 m³, and
- e) For Class AAA door 336 m³.

2.9 Fluxing Rod — Low carbon steel or similar type material rods, such as concrete reinforcing rods, to aid in torch cutting.

3 NET WORKING TIME

3.1 The net working time in minutes is to be understood to cover only the period during which an attack is

actively in progress on the vault (strong room) doors and is to be exclusive of preparation time for test and time required for safety precautions and or any other administrative requirement or break.

3.2 Measurement of Net Working Time

For each operation the clock should be started as the tool touches the test specimen and stopped when tool ceases to touch the test specimen, that is the time during which a tool is attempted to make changes in the specimen is considered as net working time.

4 SAMPLE FOR TESTING

A single sample, known to be fully representative of a series of vault (strong room) doors of same design and construction, shall be subjected to test. Such sample shall be selected on the basis of random sampling.

5 TEST METHOD

5.1 Any of the methods of attacks specified in **5.2** to **5.4** may be employed, either singly or in combination, at the option of the testing team, subjected to the applicable limitations of the tools and the time specified elsewhere in this standard.

5.1.1 Testing Team

A testing team shall consist of:

- a) a team leader familiar with design and construction practices followed in the industry;
- b) two operators skilled in operation of specified tools; and
- c) a time keeper.

NOTE — The team leader and the time keeper shall not participate in the operation of tools during the attack.

5.1.2 During any tool attack test the following tools shall not be used simultaneously:

- a) Two electric powered tools (*see 2.3 to 2.6*), and
- b) Two thermal tools (*see 2.8*).

NOTES

1 Only standard shaped chisels of steel, as supplied by the manufacturers are to be used. The use of balancers is not allowed in a tool attack test.

2 Tools to be kept ready before test as planned and not to be re-sharpened during test.

3 In the event of any tools getting damaged during a test, the same may be replaced by a fresh tool of the same specification.

5.1.3 The time period required to carry out the hammer attack shall not be counted by means of stop watch. Instead, in case of manual hammer attack, each blow shall be counted as 1 s when hammer is used with one hand. For sledge hammers where both hands are used, each blow shall be counted as 2 s.

5.1.4 Each attack on the vault door shall be completed in one continuous operation, without any change in

the team members. Once started, an attack shall be completed within 4 times the resistance time specified for that class of vault door. It shall be imperative on the testing team to complete the specified net working time within the time limit of 4 times.

5.2 Lock Mechanism

An attempt shall be made to penetrate through the door to the lock box, lug, carrying bar, or other parts of the mechanism, then to release the bolt work by punching, prying or cutting.

5.3 Cutting an Opening

An attempt shall be made to cut an opening of 620 cm² (*see 2.1*) entirely through the door.

5.4 Cutting Locking Bolts

An attempt shall be made to cut as many bolts as necessary to open the door.

6 CRITERIA FOR ACCEPTANCE

6.1 Class C Door

The door shall resist entry of test blocks with cross sectional shapes and dimensions as per **2.1** and length 400 mm minimum with suitable handle shall be used to verify the opening made during test attack continuously at a given point or area using the tools specified in **2.2** to **2.9** and test methods specified in **5.2** to **5.4**, for the net working time (*see 3.1* and **3.2**) of 15 min.

6.2 Class B Door

The door shall resist entry of test blocks with cross sectional shapes and dimensions as per **2.1** and length 400 mm minimum with suitable handle shall be used to verify the opening made during test attack continuously at a given point or area using the tools specified in **2.2** to **2.9** and test methods specified in **5.2** to **5.4**, for a net working time (*see 3.1* and **3.2**) of 30 min.

6.3 Class A Door

The door shall resist entry of test blocks with cross sectional shapes and dimensions as per **2.1** and length 400 mm minimum with suitable handle shall be used to verify the opening made during test attack continuously at a given point or area using the tools specified in **2.2** to **2.9** and test methods specified in **5.2** to **5.4**, for a net working time (*see 3.1* and **3.2**) of 60 min.

6.4 Class AA Door

The door shall resist entry of test blocks with cross sectional shapes and dimensions as per **2.1** and length 400 mm minimum with suitable handle shall be used to verify the opening made during test attack continuously at a given point or area using the tools specified in **2.2** to **2.10** and test methods specified in **5.2** to **5.4**, for a net working time (*see 3.1* and **3.2**) of 120 min.

6.5 Class AAA Door

The door shall resist entry of test blocks with cross sectional shapes and dimensions as per **2.1** and length 400 mm minimum with suitable handle shall be used to verify the opening made during test attack continuously at a given point or area using the tools specified in **2.2** to **2.9** and test method specified in **5.2** to **5.4** for a net working time (*see* **3.1** and **3.2**) of 180 min.

7 RECORDING AND REPORTING OF TEST RESULTS

7.1 The testing team shall maintain appropriate record of:

- a) identification of test specimen;
- b) date(s) and place of testing;

- c) composition of testing team, indicating the roles of the members;
- d) description of each tool attack in chronological order of events giving details of point of attack, tools used and time measurements;
- e) continuous video recording of the attacks;
- f) photographs taken before and after test of the sample; and
- g) list of tool used (with details specifications of make, capacity, weight, length etc).

7.2 The test results shall be reported in terms of observed net working time in HH:MM:SS format.

ANNEX A

(Foreword)

COMMITTEE COMPOSITION

Security Equipment Sectional Committee, MED 24

<i>Organization</i>	<i>Representative(s)</i>
Reserve Bank of India, Mumbai	SHRI D. KUMAR RAGHU (Chairman)
Bank of India, Mumbai	CAPT AKHILESH KUMAR
Central Building Research Institute, Roorkee	DR SUVIR SINGH DR RAJIV KUMAR (<i>Alternate</i>)
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Indian Overseas Bank, Chennai	CAPT P. VENKATESAN
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Voluntary Organization in Interest of Consumer Education, New Delhi	SHRI M. A. U. KHAN
In Personal Capacity (<i>Plot No. 41, Block No. 5, Mehta Cottage, Dr Raut Road, Shivaji Park, Dadar, Mumbai</i>)	SHRI AJIT G. NARAVANE
BIS Directorate General	SHRI RAJNEESH KHOSLA, SCIENTIST 'E' AND HEAD (MED) [REPRESENTING DIRECTOR GENERAL (<i>Ex-officio</i>)]

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MS KHASHBOO KUMARI
SCIENTIST 'C' (MED), BIS

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This Indian Standard has been developed from Doc No.: MED 24 (15661).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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Published by BIS, New Delhi